

CORRECTED VERSION

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
10 October 2002 (10.10.2002)

PCT

(10) International Publication Number
WO 2002/079514 A1

(51) International Patent Classification⁷: C12Q 1/68, 1/32,
1/37, G01N 33/551, 33/573, C07H 21/04, C07K 5/00

(21) International Application Number:
PCT/US2002/000645

(22) International Filing Date: 9 January 2002 (09.01.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/260,758 10 January 2001 (10.01.2001) US

(71) Applicant (for all designated States except US): THE
TRUSTEES OF BOSTON COLLEGE [US/US]; 140
Commonwealth Avenue, Chestnut Hill, MA 02467-3807
(US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): KELLEY, Shana,
O. [US/US]; 20 Parkton Road, Boston, MA 02130 (US).
FOURKAS, John [US/US]; 14 Plowgate Road, Chestnut
Hill, MA 02467 (US). NAUGHTON, Michael [US/US];
30 Ryan Drive, Norwood, MA 02062 (US). REN, Zhifeng
[CN/US]; 18 Carter Street, Newton, MA 02460 (US).

(74) Agent: EVANS, Paula, Campbell; Palmer & Dodge LLP,
111 Huntington Avenue, Prudential Center, Boston, MA
02199-7613 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,
SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR,
GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent
(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG).

Published:

— with international search report

(48) Date of publication of this corrected version:
8 July 2004

(15) Information about Correction:
see PCT Gazette No. 28/2004 of 8 July 2004, Section II

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: DNA-BRIDGED CARBON NANOTUBE ARRAYS

(57) Abstract: A class of biological sensing devices that include a substrate comprising an array of carbon nanotubes (CNTs) to which are chemically attached biological molecules is disclosed. The attached biological molecules are capable of electrical conductivity that is responsive to chemical changes occurring as a result of their interaction with target species. A means for using DNA as a material of potential in molecular electronic sensor devices, being primarily based on molecular electron-transfer reaction processes between DNA-binding donors and acceptors is also disclosed, including composition, method of manufacture and their use are described.

WO 2002/079514 A1